

REMARKS

This amendment responds to the Office action dated March 08, 2007.

Claims 1, 4-13, 18 and 19 are rejected under a statutory double patenting rejection based upon 35 U.S.C. §101. These claims are rejected as being coextensive in scope to claims within U.S. Patent Application No. 10/645,952 (hereinafter the '952 patent application).

Claims 11, 17 and 19 are canceled. Claim 17 is rewritten as new claim 20.

Claims in the '952 patent application relate to a similar invention with a similar purpose, but which uses a repellent function that does not take into account the influence of pixels in another temporal frame. The original claims in this application and under this rejection did not sufficiently distinguish from those in the '952 patent application. Accordingly, these claims have been amended to comprise elements related to a repellent function that designates pixel values in dither pattern tiles such that subsequently-designated pixels values are dispersed from previously-designated pixel values in the same dither pattern tile, dither pattern tiles in other color channels *and dither pattern tiles in another temporal frame*. As this distinction is now clear in the amended claims, the examiner is respectfully requested to remove this rejection.

The examiner has rejected claims 1-19 under 35 U.S.C. §101 as being directed to non-statutory subject matter.

Claims 11, 17 and 19 are canceled. Claim 17 is rewritten as new claim 20.

Claims 1-10 and 12-16, 18 and 20 relate to a method or system which creates a dither pattern array that can be used to reduce contouring artifacts in images. The array is a particular set of “noise” images that have specific, novel functional relationships that improve its performance in a de-contouring application. The current claims relate to systems and methods for creating this novel array. These systems and processes are typically implemented in computer software, firmware or hardware just like most other computer-executable processes or programs. The Federal Circuit has ruled that a computer operating pursuant to software is patentable subject matter. *In re Allapat*, 33 F.3d 1526, 1544-45 (Fed. Cir. 1994). These processes and systems are patentable if they produce a useful, concrete, tangible result. *AT&T Corp. v. Excel Communication, Inc.*, 172 F.3d 1352 (Fed.Cir. 1999). In *AT&T*, the court ruled that mathematical algorithms are unpatentable only when they are merely abstract ideas with no practical application. The present claims describe methods and systems for creating a useful, concrete and tangible dither pattern array, which has a practical application in the arts, for example, in a de-contouring application. The examiner appears to be applying the older, and overruled, *Freeman-Walter-Abele* test, which required a physical transformation of subject matter from one state to another. This test was overruled in the *AT&T* case cited above (*Id.* at 1359). Under current Supreme Court and Federal Circuit precedent, the current claims, as amended, represent patentable subject matter because they describe a practical application in the technological arts and yield a useful, concrete, tangible result. Accordingly, the examiner is respectfully requested to reconsider and withdraw this rejection.

The examiner has rejected claims 1-15 and 18-19 under 35 U.S.C. §103(a) as being unpatentable over Winder et al., U.S. Patent Publication No. 2004/0252759 A1, hereinafter Winder et al, in view of Panagiotis Takis Metaxas entitled “Parallel digital halftoning by error-diffusion,” hereinafter Metaxas.

Claims 11, 17 and 19 are canceled. Claim 17 is rewritten as new claim 20.

The examiner cites Winder et al as teaching a method in which pixels are dispersed from other pixel values. Winder et al teach a method of interpolating between frames in a video sequence to create an intermediate video frame. The methods of Winder et al do not teach any form of dither pattern array or any type of dispersion pattern for creating a noise image. On the contrary, Winder et al teach a method of generating a visible image, which is very different from a high-pass dither pattern, which has no function as a viewable object, but is instead applied to an image to break up low-frequency areas. Winder et al do not teach a repellent function that is influenced by parts of a dither pattern array in other color channels, other parts of the same dither pattern tile or other temporal frames. The reference to temporal frames in Winder et al simply refers to a process of estimating an intermediate image between two temporal frames, which is absent any repellent function or dispersion.

The examiner relies on Metaxas to disclose assigning a value to a pixel. Applicant admits that assignment of values to pixels is known in the art. However, the present claims describe a specific method of assigning values to pixels to create a dither pattern array using a repellent function that considers the presence of pixels in other color channel, other temporal frames and the current frame. This element is not taught in the combination of Winder et al and Metaxas.

Furthermore, the combination of Winder et al and Metaxas is an improper combination. A proper combination of art under 35 U.S.C. §103(a) requires that one of the references contain a teaching or motivation to combine the references. As Winder et al teaches a method for estimating an intermediate video sequence frame from other frames and Metaxas teaches a method for halftoning by error diffusion, one skilled-in-the-art would not be motivated to combine the references as their functions are completely unrelated. These references cannot be properly combined simply because both references relate to the broad field of image processing. There must be some teaching discernible to one skilled-in-the-art to combine the references. One skilled-in-the-art would not be motivated to combine a halftoning method with a frame interpolation method. Accordingly, applicant respectfully requests that this rejection be withdrawn, firstly as an improper combination and secondly as failing to present a prima facie case of obviousness by lacking elements of the claims.

In light of the arguments above, all claims are considered to be novel, non-obvious and patentable in view of the cited art. The applicant respectfully requests that the examiner reconsider the rejections of these claims. The examiner is invited to contact applicant's attorney directly for any reason.

Respectfully submitted,

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